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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,666	04/14/2004	Keishi Nakamura	010481A	4900
23850	7590	03/31/2005	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006			EASTHOM, KARL D	
			ART UNIT	PAPER NUMBER
			2832	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/823,666

Applicant(s)

NAKAMURA ET AL.



Examiner

Karl D. Easthom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/825,446.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/14/2004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

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1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the grooves of claims 14-15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 11 and 15 rejected under 35 U.S.C. 102(b) as being anticipated by DeVries. DeVries discloses the claimed invention at Figs. 1-2 with resistor body 2 having two end portions where electrodes or metal strips 8,9 attach, and inlaid in a groove as depicted. There are several planes. One can see the common plane at Fig. 2 where the end of 9 is in the same plane as the edge of the curved part on the right just above the "2" in the "Fig. 2" label. For claim 15, the metal strip is affixed by junction since there is a junction there, or by rolling since the curved parts have been rolled or bent.

4. Claims 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Szwarc et al. '234. Szwarc discloses the claimed invention at Figs. 1-2 with resistor body 12/14 having two end portions 14 where electrodes or metal strips 16 attach, and inlaid in a groove as depicted (the cutout is a groove). The end portions 14 and metal strip 16 have a surface in a common plane which is the surface that is not bent and laying in the groove as seen. For claims 12-13, the strips 14, 16 are copper at with the resistor NiCr or nichrome, col. 2, lines 1-22.

5. Claim 15 is rejected under 35 U.S.C. 102(e) as anticipated by Szwarc et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over Szwarc et al. in view of Smejkal et al.

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For the 102 alternative, the metal strip is affixed by junction since there is a junction. That is, "junction" does not appear to be modified by another term in the claim. As the 103 alternative, where a type of thermal diffusion bonding, Szwarc discloses that method at col. 3, lines 3-12, or a cladding process, as a well known way to join dissimilar materials like that of Szwarc to avoid use of adhesives or braising alloys so that same would have been obvious.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 4-9 are rejected under 35 U.S.C. 103 as being obvious over Smekjkal in view of Person et al. '083. Smekjkal discloses at Fig. 7A (metal strip electrodes 30, with resistor 28), the claimed invention except the thickness, and perhaps the straight path and fused solder only on the electrodes. The diffusion layer is created by the cladding process disclosed at col. 3, lines 3-12, where the joining by the high pressure necessarily results in diffusion else the materials would not be joined. Person discloses the claimed thickness at col. 4, lines 3-27 for the purpose of obtaining the desired resistance and strength, so that it would have been obvious to employ that thickness. Person discloses no cutting as an option at col. 5, lines 40-45 indicating the resistors can be solid or cut, the latter in order to obtain the desired resistance. Similarly, Smekjkal suggests trimming is performed only if the desired resistance is not high enough, such that it would have been obvious to employ a noncut resistor is disclosed where any desired resistance is desired, see Smekjkal at col. 3, lines 43-55, where Aeach body is adjusted to

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its desired resistance value. That is, if the resistance value in the uncut resistor is desired, it is not adjusted. This meets the straight and uniform path between the electrodes. For the insulation, Smejkal discloses it stating "encapsulation material 62 is applied to the exposed front and rear surfaces and edges of the resistive strip 28" – col. 3, lines 55-65. For the solder, Smejkal indicates at cols. 3-4, lines 55-10, that solder 66 is only on the electrode surfaces because Smejkal discloses covering all exposed portions of the resistor 28 with the encapsulation 62 as just noted, and then employing solder, and thus with only the electrodes exposed, this process would leave solder only on each surface of the electrodes 66. This is similar to the Fig. 10 embodiment of Person showing only the electrodes exposed, which would have been obvious so as to protect the resistor. For claim 4, the thicknesses appear about equal in Fig. 7A and it would have been obvious to employ the claimed thickness where the device is described as having double thickness at the electrodes, see claim 8 of Smejkal et al. For claim 5, EVANOHM (an alloy of Cr, Cu, Al, Ni, to which Official Notice is taken) of Person at col. 2 meets the claims, which is disclosed as a good foil material having a desired resistance and TCR so that such a material would have been obvious for that purpose where any resistive strip is disclosed by Smejkal. For claim 6, copper is disclosed for electrodes 30,32 of Smejkal. Also, in Person at col. 4, lines 3-40, the relative electrode to resistor thickness is described as substantially less, suggesting the claimed ranges. For claims 6-7, copper or nickel and the materials of Person have the claimed relative conductivities where it would have been obvious to make the resistor lower in conductivity than the conductor, else it would not be called a resistor. For claim 8, Person discloses that the thickness of 1-8 mils is varied, thus adjusting the resistance, at col. 4, lines 1-25, ranges from 25-200um, so that it would have been obvious to

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employ such a method limitation in the product for the purpose noted of adjusting resistance.

Also, grinding, shaving, etc. is disclosed at col. 3, lines 14-31 so that grinding or shaving the thickness of the middle would have been obvious to ensure all the copper is removed from the middle of the resistor. For claims 9-10, epoxy is disclosed at Smejkal col. 1 by way of specific reference to Rainer (US 5,604,477). disclosing epoxy as a good insulation material for resistors such as Person and Smejkal so that same would have been obvious. See the alternative below.

8. Claims 9-10 are rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '083, further in view of Rainer. As an alternative, here, Rainer is specifically noted in the 103 heading, such that it would have been obvious in view of Rainer, to employ epoxy where Smejkal discloses an improvement over Rainer for other reasons, and each disclose coatings to protect the resistor as noted at col. 1 of Smejkal.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '083, further in view of Shindo et al. Person with Smejkal disclose the claimed invention as noted above, except the solder thickness, the material. Shindo et al. discloses a fused solder layer 7 in the claimed thickness at cols. 2-3, lines 60-46, for the purpose of making a uniform solder layer of increased reliability due to a smoother surface that holds less contaminants, such that it would have been obvious to render such a thickness where solder is disclosed by Smejkal. The solder is fused where it is melted. See also the tin at col. 2, lines 35-40 or 65-70, which is a lead free solder, or suggests a lead free solder since it is a substitute for lead-tin solder and is a low melting point material.

10. Claims 2-3 are rejected under 35 U.S.C. 103(a) as obvious over Smejkal et al. with Person '038, further in view of Takeuchi et al. Smejkal or Person disclose the claimed

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invention, as noted above, except the solder and electrode thickness. That thickness is disclosed as standard in the art for a surface mounted chip resistor at col. 9, lines 30-33 for mounting thereof such that it would have been obvious to form the claimed thickness for the layers of Smejkal et al. whereat a surface mounted chip resistor is also disclosed for mounting.

11. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as obvious over DeVries in view of Person et al. The claimed invention is as noted except the thickness of the device, and materials. Person discloses that the thickness of 1-8 mils is varied, thus adjusting the resistance, at col. 4, lines 1-25, ranges from 25-200um, so that it would have been obvious to employ such a method limitation in the product for the purpose noted of adjusting resistance. EVANOHM (an alloy of Cr, Cu, Al, Ni, to which Official Notice is take) of Person at col. 2 meets claim 14, which is disclosed as a good foil material having a desired resistance and TCR so that such a material would have been obvious for that purpose where resistive strips are disclosed by DeVries.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as obvious over DeVries in view of Smejkal et al. The claimed invention is as noted except the nickel or copper. Copper is disclosed as a suitable material for electrodes for metal strips at col. 3, lines 5-10 of Smejkal, so that such a material would have been obvious for the electrodes of DeVries where both are employed with resistive strips.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D. Easthom whose telephone number is (571) 272-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Karl D Easthom  
Primary Examiner  
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KDE